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(54) **DEHYDROGENATION OF LIQUID FUEL IN MICROCHANNEL CATALYTIC REACTOR**

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(58) **Field of Classification Search** 48/61; 423/644, 648.1

See application file for complete search history.

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(57) **ABSTRACT**

The present invention is an improved process for the storage and delivery of hydrogen by the reversible hydrogenation/dehydrogenation of an organic compound wherein the organic compound is initially in its hydrogenated state. The improvement in the route to generating hydrogen is in the dehydrogenation step and recovery of the dehydrogenated organic compound resides in the following steps:

introducing a hydrogenated organic compound to a microchannel reactor incorporating a dehydrogenation catalyst;

effecting dehydrogenation of said hydrogenated organic compound under conditions whereby said hydrogenated organic compound is present as a liquid phase;

generating a reaction product comprised of a liquid phase dehydrogenated organic compound and gaseous hydrogen;

separating the liquid phase dehydrogenated organic compound from gaseous hydrogen; and,

recovering the hydrogen and liquid phase dehydrogenated organic compound.

17 Claims, 1 Drawing Sheet